

**Table 4a. Percentage distribution of science and engineering doctorates awarded,
by major field and citizenship status of recipients: 1990-1999**

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Field of study	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total										
Science and engineering, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering, total	21.4	21.7	22.0	22.4	22.2	22.6	23.2	22.4	21.7	20.6
Aeronautical/astronautical .....	.8	.9	.9	.9	.9	.9	1.1	1.0	.9	.8
Chemical	2.9	2.9	2.9	2.9	2.8	2.7	2.9	2.8	2.8	2.6
Civil	2.4	2.4	2.4	2.5	2.6	2.5	2.6	2.4	2.4	2.3
Electrical	5.6	5.8	6.0	6.1	6.4	6.5	6.4	6.3	5.8	5.7
Industrial .....	.7	.7	.8	.9	.9	1.1	.9	.9	.8	.8
Materials/metallurgical	1.9	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.1	1.8
Mechanical	3.9	3.6	4.0	4.0	3.9	3.9	3.9	3.7	3.7	3.3
Other engineering	3.2	3.4	3.0	3.0	2.8	2.9	3.3	3.1	3.1	3.3
Sciences, total	78.6	78.3	78.0	77.6	77.8	77.4	76.8	77.6	78.3	79.4
Physical sciences, total	15.4	15.1	15.3	14.5	15.2	14.5	14.1	13.8	14.0	13.8
Astronomy .....	.6	.5	.5	.6	.5	.7	.7	.7	.8	.6
Chemistry	9.2	9.1	9.0	8.4	8.6	8.1	7.9	7.9	8.1	8.2
Physics	5.5	5.4	5.7	5.5	5.9	5.6	5.5	5.1	5.0	4.9
Other physical sciences .....	.1	.1	.1	.1	.1	.1	.0	.1	.1	.1
Earth, atmospheric, and ocean sciences	3.2	3.4	3.2	3.0	3.1	2.9	2.9	3.2	3.0	3.1
Mathematics	3.9	4.3	4.3	4.5	4.3	4.5	4.1	4.1	4.3	4.2
Computer sciences	3.1	3.3	3.5	3.5	3.4	3.8	3.4	3.3	3.4	3.3
Biological sciences	18.9	19.4	19.4	20.0	19.9	20.3	21.0	21.2	21.4	21.6
Agricultural sciences	5.1	4.5	4.3	3.8	4.1	3.9	3.8	3.6	3.8	3.7
Psychology	14.3	13.5	13.2	13.4	12.9	12.9	12.8	13.1	13.5	14.1
Social sciences	14.6	14.8	14.6	14.8	14.9	14.6	14.7	15.1	14.9	15.6
Citizenship known										
Science and engineering, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering, total	21.1	21.7	21.9	22.2	22.2	22.6	23.1	22.7	21.6	20.5
Aeronautical/astronautical .....	.8	.9	.9	.9	.9	1.0	1.0	1.0	.9	.8
Chemical	2.9	2.9	3.0	2.9	2.8	2.7	3.0	2.9	2.9	2.7
Civil	2.4	2.4	2.4	2.5	2.6	2.5	2.5	2.5	2.4	2.3
Electrical	5.5	5.8	6.0	6.1	6.4	6.5	6.3	6.4	5.8	5.7
Industrial .....	.7	.7	.8	.9	.9	1.1	1.0	.9	.9	.8
Materials/metallurgical	1.9	2.0	2.0	2.1	2.1	2.2	2.1	2.2	2.1	1.8
Mechanical	3.8	3.6	4.0	4.0	3.9	3.8	3.9	3.8	3.7	3.3
Other engineering	3.1	3.3	2.9	2.9	2.7	2.8	3.3	3.1	3.1	3.2
Sciences, total	78.9	78.3	78.1	77.8	77.8	77.4	76.9	77.3	78.4	79.5
Physical sciences, total	15.6	15.1	15.4	14.6	15.2	14.5	14.0	13.8	14.1	13.8
Astronomy .....	.6	.5	.6	.6	.6	.7	.7	.8	.8	.6
Chemistry	9.2	9.1	9.0	8.4	8.6	8.1	7.8	7.9	8.2	8.2
Physics	5.6	5.4	5.7	5.5	5.9	5.6	5.4	5.1	5.0	4.9
Other physical sciences .....	.1	.1	.1	.1	.1	.1	.0	.1	.1	.1
Earth, atmospheric, and ocean sciences	3.2	3.4	3.2	3.0	3.2	3.0	2.9	3.2	3.0	3.1
Mathematics	3.9	4.3	4.2	4.5	4.3	4.4	4.1	4.1	4.3	4.3
Computer sciences	3.1	3.4	3.6	3.5	3.4	3.8	3.4	3.3	3.4	3.3
Biological sciences	19.3	19.5	19.7	20.2	20.0	20.4	21.2	21.5	21.7	21.9
Agricultural sciences	5.1	4.5	4.3	3.9	4.2	4.0	3.8	3.6	3.9	3.9
Psychology	14.2	13.4	13.1	13.4	12.8	12.9	12.9	12.6	13.2	13.7
Social sciences	14.6	14.8	14.6	14.8	14.8	14.5	14.6	15.0	14.9	15.6

See explanatory information, if any, and SOURCE at end of table.

**Table 4a. Percentage distribution of science and engineering doctorates awarded,
by major field and citizenship status of recipients: 1990-1999**

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Field of study	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
U.S. citizens										
Science and engineering, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering, total	13.8	14.3	14.5	14.9	14.6	15.4	16.6	17.0	15.8	15.7
Aeronautical/astronautical .....	.6	.7	.7	.8	.7	.9	1.1	1.0	.9	.7
Chemical	2.4	2.4	2.2	2.2	1.9	1.9	2.0	2.0	2.0	2.1
Civil	1.3	1.2	1.1	1.1	1.3	1.3	1.4	1.5	1.5	1.6
Electrical	3.5	3.8	4.1	4.2	4.2	4.4	4.5	4.7	3.9	4.0
Industrial .....	.4	.3	.4	.6	.6	.7	.7	.6	.5	.5
Materials/metallurgical	1.3	1.4	1.4	1.5	1.4	1.5	1.6	1.7	1.6	1.4
Mechanical	2.1	2.0	2.4	2.3	2.4	2.5	2.8	2.8	2.7	2.5
Other engineering	2.2	2.4	2.2	2.2	2.0	2.2	2.6	2.7	2.7	2.8
Sciences, total	86.2	85.7	85.5	85.1	85.4	84.6	83.4	83.0	84.2	84.3
Physical sciences, total	15.3	14.5	14.8	14.0	14.5	13.8	13.3	13.2	13.2	12.8
Astronomy .....	.6	.6	.7	.7	.7	.8	.9	.9	.8	.7
Chemistry	9.9	9.2	9.1	8.5	8.5	8.0	7.5	7.7	7.9	7.9
Physics	4.7	4.6	4.9	4.7	5.2	4.9	4.9	4.5	4.3	4.1
Other physical sciences .....	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
Earth, atmospheric, and ocean sciences	3.6	4.0	3.5	3.1	3.3	3.1	3.0	3.3	3.1	3.0
Mathematics	2.6	3.2	3.1	3.3	3.3	3.6	3.1	3.3	3.5	3.4
Computer sciences	2.5	2.7	2.9	2.8	2.8	3.1	2.7	2.7	2.9	2.6
Biological sciences	22.5	22.7	22.9	23.1	22.6	22.6	22.7	22.8	23.1	23.2
Agricultural sciences	4.4	3.9	3.5	3.1	3.4	3.2	3.0	2.9	2.9	2.8
Psychology	20.6	20.2	19.9	20.6	20.1	19.9	20.0	18.9	19.6	20.0
Social sciences	14.6	14.7	14.9	15.1	15.3	15.4	15.6	15.9	15.9	16.5
Non-U.S. citizens										
Science and engineering, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering, total	34.3	33.8	33.3	33.4	33.1	33.1	32.5	32.1	31.3	29.2
Aeronautical/astronautical	1.2	1.1	1.3	1.1	1.1	1.0	1.0	1.1	.9	1.0
Chemical	3.9	3.7	4.2	4.0	4.0	3.9	4.4	4.4	4.3	3.6
Civil	4.4	4.4	4.3	4.5	4.5	4.2	4.3	4.0	3.8	3.4
Electrical	9.1	9.2	8.9	8.9	9.5	9.5	9.0	9.2	8.9	8.6
Industrial	1.2	1.3	1.5	1.4	1.3	1.6	1.3	1.4	1.4	1.4
Materials/metallurgical	3.0	3.0	2.8	3.0	3.0	3.2	2.9	2.9	2.8	2.6
Mechanical	6.9	6.2	6.5	6.6	6.1	5.9	5.4	5.4	5.5	4.7
Other engineering	4.6	4.9	3.8	3.9	3.7	3.8	4.2	3.7	3.7	3.9
Sciences, total	65.7	66.2	66.7	66.6	66.9	66.9	67.5	67.9	68.7	70.8
Physical sciences, total	16.0	16.1	16.3	15.4	16.1	15.6	15.1	14.8	15.5	15.4
Astronomy .....	.4	.4	.4	.4	.4	.5	.5	.4	.7	.5
Chemistry	8.1	9.0	8.9	8.2	8.7	8.4	8.4	8.2	8.6	8.7
Physics	7.4	6.6	7.0	6.7	6.9	6.6	6.2	6.1	6.2	6.1
Other physical sciences .....	.1	.1	.1	.1	.1	.1	.0	.0	.1	.1
Earth, atmospheric, and ocean sciences	2.4	2.4	2.9	2.8	2.9	2.8	2.8	3.1	2.8	3.3
Mathematics	6.1	6.3	6.0	6.3	5.7	5.7	5.5	5.5	5.5	5.8
Computer sciences	4.2	4.5	4.6	4.4	4.4	4.7	4.3	4.3	4.2	4.5
Biological sciences	13.4	14.2	14.8	15.9	16.4	17.2	19.0	19.5	19.3	19.7
Agricultural sciences	6.4	5.5	5.6	5.1	5.2	5.1	5.0	4.8	5.5	5.7
Psychology	2.4	2.2	2.6	2.4	2.2	2.5	2.6	2.3	2.7	2.5
Social sciences	14.7	14.9	14.1	14.3	14.0	13.3	13.1	13.5	13.2	13.9

See explanatory information, if any, and SOURCE at end of table.

**Table 4a. Percentage distribution of science and engineering doctorates awarded,
by major field and citizenship status of recipients: 1990-1999**

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Field of study	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Non-U.S. citizens with permanent visas										
Science and engineering, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering, total	32.5	30.2	29.7	28.6	27.7	27.2	26.4	26.0	23.7	24.3
Aeronautical/astronautical .....	.7	.9	.6	.4	.7	.4	.6	.6	.6	.5
Chemical	4.2	4.0	4.3	3.2	2.9	2.6	2.4	3.9	2.3	2.4
Civil	5.1	3.1	3.7	3.6	2.9	2.9	3.1	3.4	2.5	3.1
Electrical	9.0	10.3	8.8	10.1	8.8	8.2	7.3	8.2	8.2	7.6
Industrial	1.1	1.4	1.4	1.0	1.0	1.2	1.0	.7	.8	.8
Materials/metallurgical	2.2	2.3	2.5	2.4	2.6	3.2	3.1	1.9	2.4	2.1
Mechanical	5.8	4.8	5.4	5.3	5.9	5.1	5.1	3.6	4.1	3.9
Other engineering	4.5	3.5	3.0	2.7	2.9	3.6	3.8	3.7	2.8	4.0
Sciences, total	67.5	69.8	70.3	71.4	72.3	72.8	73.6	74.0	76.3	75.7
Physical sciences, total	14.4	14.0	14.5	14.4	19.6	20.1	16.4	16.1	15.6	14.6
Astronomy .....	.3	.2	.4	.3	.3	.6	.4	.3	.8	.4
Chemistry	8.3	8.6	8.2	7.8	10.8	11.0	9.7	9.0	8.9	9.1
Physics	5.4	5.3	5.9	6.2	8.4	8.4	6.2	6.7	5.8	5.1
Other physical sciences .....	.3	.0	.0	.1	.1	.1	.0	.1	.1	.1
Earth, atmospheric, and ocean sciences	1.6	2.0	2.5	2.5	3.5	3.3	3.2	3.1	3.1	3.1
Mathematics	3.9	4.3	3.8	5.7	5.1	6.2	5.3	4.3	4.6	4.1
Computer sciences	4.6	4.9	4.8	5.1	3.9	3.8	3.1	4.0	4.2	4.3
Biological sciences	15.8	16.4	17.4	18.5	22.0	23.8	27.2	25.6	27.4	28.2
Agricultural sciences	4.8	4.4	4.5	3.0	3.2	3.0	3.4	3.6	3.9	3.1
Psychology	6.1	5.1	6.2	5.5	2.8	2.9	3.5	3.9	4.6	4.2
Social sciences	16.4	18.8	16.6	16.7	12.2	9.7	11.7	13.4	13.0	14.2
Non-U.S. citizens with temporary visas										
Science and engineering, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering, total	34.7	34.5	33.9	34.3	35.3	36.1	34.8	34.0	33.2	30.3
Aeronautical/astronautical	1.3	1.2	1.4	1.2	1.3	1.3	1.2	1.3	.9	1.1
Chemical	3.8	3.7	4.2	4.1	4.5	4.5	5.1	4.6	4.8	3.9
Civil	4.3	4.6	4.4	4.7	5.1	4.8	4.7	4.1	4.1	3.5
Electrical	9.2	9.0	9.0	8.7	9.8	10.2	9.6	9.5	9.1	8.8
Industrial	1.2	1.2	1.5	1.5	1.4	1.9	1.5	1.6	1.6	1.5
Materials/metallurgical	3.2	3.2	2.9	3.1	3.1	3.2	2.8	3.2	2.9	2.7
Mechanical	7.1	6.5	6.6	6.8	6.1	6.2	5.5	6.0	5.8	4.9
Other engineering	4.6	5.1	4.0	4.2	4.0	3.9	4.4	3.7	4.0	3.9
Sciences, total	65.3	65.5	66.1	65.7	64.7	63.9	65.2	66.0	66.8	69.7
Physical sciences, total	16.3	16.5	16.6	15.6	14.7	13.3	14.6	14.4	15.5	15.6
Astronomy .....	.5	.5	.3	.4	.4	.4	.5	.5	.7	.5
Chemistry	8.1	9.0	9.0	8.3	7.9	7.0	7.9	8.0	8.5	8.6
Physics	7.7	6.9	7.2	6.8	6.3	5.7	6.2	5.9	6.3	6.4
Other physical sciences .....	.1	.1	.1	.0	.1	.1	.0	.0	.1	.1
Earth, atmospheric, and ocean sciences	2.6	2.4	2.9	2.9	2.6	2.5	2.6	3.1	2.8	3.3
Mathematics	6.5	6.6	6.3	6.4	6.0	5.5	5.7	5.9	5.7	6.1
Computer sciences	4.1	4.4	4.5	4.3	4.6	5.2	4.8	4.4	4.2	4.6
Biological sciences	13.0	13.9	14.3	15.4	14.1	13.9	15.9	17.6	17.1	17.8
Agricultural sciences	6.7	5.7	5.8	5.5	6.0	6.1	5.6	5.2	5.9	6.3
Psychology	1.8	1.7	1.9	1.8	2.0	2.3	2.3	1.8	2.2	2.1
Social sciences	14.4	14.3	13.6	13.9	14.8	15.1	13.6	13.6	13.3	13.9

See explanatory information, if any, and SOURCE at end of table.

**Table 4a. Percentage distribution of science and engineering doctorates awarded,
by major field and citizenship status of recipients: 1990-1999**

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Field of study	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Citizenship unknown										
Science and engineering, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering, total	29.0	22.9	27.3	28.7	23.3	26.1	25.3	17.5	23.9	21.1
Aeronautical/astronautical	1.7	.4	3.0	1.2	.8	.9	1.3	.6	1.6	1.0
Chemical	1.7	2.4	1.2	3.2	1.8	1.7	1.0	1.1	2.3	1.6
Civil	3.0	1.9	3.4	2.2	1.4	1.8	2.9	1.4	2.9	1.7
Electrical	8.0	6.2	6.1	5.9	7.8	8.8	8.0	5.4	6.6	6.2
Industrial .....	.3	.6	.6	.8	.0	.7	.8	.7	.6	.2
Materials/metallurgical	1.7	1.7	2.5	2.5	1.8	2.4	2.0	1.7	1.9	1.4
Mechanical	5.5	4.9	3.6	5.5	3.6	4.6	4.2	2.7	4.2	3.1
Other engineering	7.1	4.7	6.9	7.3	6.0	5.1	5.0	3.9	3.7	6.0
Sciences, total	71.0	77.1	72.7	71.3	76.7	73.9	74.7	82.5	76.1	78.9
Physical sciences, total	11.8	14.7	12.2	14.0	16.3	12.8	16.3	14.1	13.4	14.7
Astronomy .....	.2	.4	.0	.0	.0	.7	.1	.2	.6	.4
Chemistry	7.8	9.4	6.9	8.2	8.9	8.3	9.3	8.2	7.3	8.6
Physics	3.5	4.7	5.0	5.7	6.6	3.9	6.9	5.4	5.4	5.8
Other physical sciences .....	.2	.2	.3	.1	.8	.0	.0	.2	.1	.0
Earth, atmospheric, and ocean sciences	3.4	2.6	2.7	4.2	2.8	2.4	4.0	3.2	2.9	3.4
Mathematics	4.9	3.2	6.2	5.2	2.6	6.8	4.1	3.9	4.8	2.8
Computer sciences	3.3	1.9	2.3	3.0	3.4	2.9	4.0	4.4	3.0	2.9
Biological sciences	10.2	14.1	11.2	12.4	11.5	14.3	15.1	15.8	16.5	15.3
Agricultural sciences	5.0	3.8	2.8	2.0	1.8	1.7	2.6	3.0	2.5	1.2
Psychology	18.4	21.2	18.9	14.7	18.5	14.9	10.5	22.0	18.7	22.0
Social sciences	13.8	15.6	16.4	15.9	19.7	18.2	18.4	16.2	14.3	16.6

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates